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PATENT

Attorney Reference Number 3382-51792-01
Application Number 09/383,038

Claims

1. (previously presented) A computer-readable medium having stored thereon computer-executable instructions for implementing a shell program that exposes an application programming interface for customizing a customizable visual user interface for a telephony device with a screen display, the customizable visual user interface comprising:

an application program selection area, including user interface controls for selecting application programs;

a call slip area, including a call slip user interface for displaying telephone line state information; and

a customizable area including at least one user interface element enabling a user to compose e-mail via the telephony device;

wherein the application programming interface comprises one or more methods for customizing the customizable area; and

wherein at least one of the one or more methods for customizing the customizable area is for adding one or more custom panes to the visual user interface for the telephony device, the one or more panes associated with a parent application separate from the shell program, the parent application operable to communicate with the shell program via the application programming interface.

2. (canceled)

3. (previously presented) The computer-readable medium of claim 1 wherein the customizable area includes one or more user interface panes that each display user interface elements of a corresponding application program.

4. (previously presented) The computer-readable medium of claim 1 wherein the customizable visual user interface further comprises a message usage interface pane that displays user interface elements visually depicting a type of message received in the telephony device.

5. (previously presented) The computer-readable medium of claim 4 wherein the user interface elements visually depicting a type of message comprise graphical icons indicating that the

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user has received a message.

6. (previously presented) The computer-readable medium of claim 5 wherein the graphical icons are user interface controls that respond to user input from an input device by initiating a message viewer to view a corresponding message.

7. (canceled)

8. (Currently Amended) A method of creating a customizable visual user interface for a telephony device with a screen display, the method comprising:

providing, on one or more computer-readable media, software comprising computer-executable instructions for customizing the customizable visual user interface, the customizable visual user interface comprising a branding area for displaying a brand graphic, wherein the branding area is operable to allow a user to connect to an internet location via the telephony device, and wherein the internet location is associated with the brand graphic;

wherein the software for customizing the customizable visual user interface comprises at least one application programming interface comprising one or more methods for adding one or more custom panes corresponding to a parent application to the customizable visual user interface;

wherein the software for customizing the customizable visual user interface is provided by a first software provider to a second software provider; and

wherein customization of the customizable visual user interface is performed by the second software provider using the application programming interface.

9.-12. (canceled)

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13. (Currently Amended) A method for developing software to run on a telephony device, the method comprising:

receiving, on one or more computer-readable media, a software platform comprising computer-executable instructions for displaying a user interface on a display screen of the telephony device, wherein the software platform exposes a programmatic programming interface operable to provide functionality for customizing the user interface;

receiving default user interface program modules that each display default user interface elements in the user interface; and

creating a custom user interface program module, wherein the custom user interface program module uses the programmatic programming interface operable to provide functionality for customizing the user interface and displays a custom user interface element in the user interface, the custom user interface element associated with a parent application not included in the received software platform or the received default user interface program modules.

14. (previously presented) The method of claim 13 further including:

enumerating the custom program module in a data structure of an operating system to enable the software platform to identify the custom user interface element and add the custom user interface element to the user interface.

15. (previously presented) The method of claim 13 further including:

receiving a definition of a programmatic programming interface for a pane, where the programmatic programming interface includes a function for creating a custom pane in the display screen of the telephony device; and

developing code for the custom pane that implements the programmatic programming interface according to the definition, the code implementing the function for creating the custom pane.

16. (previously presented) The method of claim 13 including:

receiving a set of application programs associated with the default user interface elements; and
for a selected default user interface element, selecting an associated application program from the set to be loaded onto and executed in the telephony device;

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wherein the associated application program uses the selected default user interface element as a user interface.

17. (previously presented) The method of claim 16 wherein the default program modules include a message program module for displaying a user interface for a message center application program in a message pane;

wherein the message center application program communicates state changes to the message program module, and wherein the message program module updates the message pane to reflect the state changes.

18. (previously presented) The method of claim 17 wherein the state changes include arrival of a fax, email, or answering message, and the message program module updates the message pane by displaying an indicator of the arrival of the message.

19. (previously presented) A computer readable medium having programming modules that control display of a user interface of a screen phone, the programming modules including:

a shell program for controlling display of a user interface on a display screen of the screen phone, wherein the shell program exposes a programmatic programming interface operable to provide functionality for customizing the user interface;

default pane programs that each control display of default panes in the user interface, at least one of the default pane programs providing a user interface for a parent application program;

wherein the parent application program communicates state changes to a corresponding default pane program, and the corresponding default pane program updates the default pane to reflect the state changes; and

wherein the programmatic programming interface provides one or more methods for creating one or more custom panes for display in the user interface, the custom panes associated with one or more parent applications outside the shell program.

20. (original) The computer readable medium of claim 19 wherein:

the parent application program is a message program for managing messages received by the

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screen phone, including fax, e-mail or answering machine messages;

the corresponding default pane program is a message pane program, and the message pane program updates the message pane by displaying an indicator of the arrival of the message.

21. (Currently Amended) A method of developing software for a customizable visual user interface for a telephony device with a screen display, wherein the customizable visual user interface comprises

a message area for displaying a visual indicator of fax, e-mail, or answering machine messages, the method comprising:

providing, on one or more computer-readable media, software comprising computer-executable instructions for implementing default elements of the customizable visual user interface and customizing the customizable visual user interface to a custom software implementer;

wherein the software for implementing default elements of the customizable visual user interface and customizing the customizable visual user interface comprises at least one application programming interface comprising one or more methods for customizing the visual user interface, the one or more methods comprising a method for adding a custom pane corresponding to a parent application to the customizable visual user interface.

22. (previously presented) The method of claim 21 wherein the customizable visual user interface further comprises a user interface element for enabling a user to activate a compose e-mail service.

23. (previously presented) The method of claim 21 wherein the customizable visual user interface further comprises a branding area for displaying a brand graphic.

24. (previously presented) The method of claim 21 wherein the message area is customizable.

25. (previously presented) The method of claim 21 wherein the customizable visual user interface is operable to be customized by adding additional user interface elements.

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26. (previously presented) The computer-readable medium of claim 1 wherein the customizable area further includes a message display element for displaying answering machine, e-mail or fax messages for one or more users.

27. (previously presented) The computer-readable medium of claim 1 wherein the customizable area further includes a branding display element for displaying a brand graphic.

28. (previously presented) The method of claim 13 further comprising creating a custom application program that uses the custom user interface element as a user interface and communicates state changes in the custom application program to the custom program module, wherein the custom program module is operable to update information displayed in the custom user interface element in response to the state changes.

29. (previously presented) The method of claim 13 wherein the programmatic programming interface exposed by the software platform comprises the following function as a platform service for customizing the user interface:

a function for adding a pane to the user interface.

30. (previously presented) The method of claim 29 wherein the programmatic programming interface exposed by the software platform further comprises the following function as a platform service for customizing the user interface:

registering the pane to receive messages related to a status change for the pane.

31. (previously presented) The method of claim 30 wherein the software platform offers the following platform service:

as a result of registering the pane, posting a message indicating a status change to the pane when an event related to a status change is detected.

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32. (previously presented) A computer-implemented method for providing run-time customization of a user interface of a telephony device, the method comprising:
- at run-time of the user interface, accepting an indication that a new user interface element is to be added to the user interface of the telephony device; and
 - responsive to the accepting, adding the new user interface element to the user interface of the telephony device;
 - wherein the accepting facilitates customization of the user interface of the telephony device at run-time of the user interface; and
 - wherein the new user interface element is associated with a parent application separate from a shell program implementing default elements of the user interface.
33. (previously presented) A computer-readable medium having computer-executable instructions for performing the method of claim 32.
34. (previously presented) The method of claim 32 wherein the accepting is accomplished via a programmatic programming interface.
35. (previously presented) The method of claim 34 further comprising:
- via the programmatic programming interface, accepting an indication that the new user interface element is to be registered for receiving messages related to the new user interface element.
36. (previously presented) The method of claim 35 wherein the programmatic programming interface further accepts a reference to the new user interface element.
37. (previously presented) The method of claim 32 wherein the new user interface element comprises a new pane.
38. (previously presented) The method of claim 32 wherein the new user interface element enables a user to select a service provided by the telephony device.

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39. (previously presented) The method of claim 32 wherein the new user interface element enables a user to activate a compose e-mail service.

40. (previously presented) The method of claim 32 wherein the new user interface element enables a user to activate an online directory service.

41. (previously presented) A telephony device comprising:
a screen display;
a computer-readable medium; and
a user input device;
wherein the computer-readable medium has stored thereon a software platform comprising:
computer executable instructions for displaying a graphical user interface for the telephony device on the screen display; and
an application programming interface operable to enable customization of the graphical user interface during run-time of the graphical user interface;
wherein the customization comprises adding one or more new user interface elements associated with a parent application separate from the software platform.

42. (previously presented) The telephony device of claim 41 wherein the graphical user interface comprises a message area for displaying a visual indicator of fax, e-mail, or answering machine messages.

43. (previously presented) The telephony device of claim 41 wherein the graphical user interface comprises a user interface element for enabling a user to activate a compose e-mail service or an online directory service.

44. (previously presented) The telephony device of claim 41 wherein the graphical user interface comprises a branding area for displaying a brand graphic.

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45. (previously presented) A method of communicating between a pane program and a shell program in a telephony device, wherein the shell program is operable to display a user interface for the telephony device, the method comprising:

providing a pane identifier in a function call, wherein the identifier is associated with a new pane to be added to the user interface, the new pane associated with the pane program, wherein the pane program is separate from but in communication with the shell program; and
in response to the providing, creating an instance of the new pane in the user interface;
wherein the function call calls a function in a programming interface exposed by the shell program, and wherein the programming interface facilitates customization of the user interface.

46. (Currently Amended) A computer-readable medium having stored thereon software for implementing a customizable visual user interface for a telephony device with a screen display, the visual user interface comprising:

an application program selection area, including user interface controls for selecting application programs;

a call slip area, including a call slip user interface for displaying telephone line state information; and

a customizable area including at least one user interface element enabling a user to activate an internet browser application program to access an online directory service;

wherein the software for implementing a customizable visual user interface comprises at least one application programming interface comprising one or more methods for customizing the customizable area; and

wherein at least one of the one or more methods for customizing the customizable area is for adding one or more custom panes to the visual user interface for the telephony device, the one or more panes associated with a parent application separate from a shell program implementing default elements of the visual user interface.